MACHINING PRACTICE

• Machine tool creates 2 relative motions
  o Primary motion
    o Tool face approached workpiece
    o Primary motion absorbs most power
  o Feed motion
    o In addition to primary motion
    o Produces continuous chip + machined surface
    o Small power in feed motions
• Machine tool coordinate systems

Tool motions

- Right hand system
  - $xyz$
- $z$ parallel to machine spindle
- $x$ radial
- $y$ feed
- Right hand rotations: $A, B, C$ about axes $x, y, z$

Workpiece motions

- Inverted system $x'y'z'$
- Opposed to $xyz$
- Right hand rotations: $A', B', C'$ about $x', y', z'$
- $x' = -x, y' = -y, z' = -z$
• Cutting variables:
  o cannot be changed on spot
  o examples:
    o cutting edge-geometry  materials
    o cutting fluid
    o workpiece material

• Cutting conditions:
  o can be changed on spot
  o examples:
    ▪ cutting speed \( v \)
    ▪ feed or feed engagement
    ▪ depth of cut